

IN THE SPECIFICATION:

Please rewrite paragraph [0013] as follows:

**[0013]** A technique which realizes perfect color matching between environments differing in environmental illuminating light, i.e., environments having illuminating lights different in spectral distribution is disclosed in, e.g., Japanese Patent Laid-Open No. 9-172649. Since this technique uses spectral distribution data, it is necessary to acquire the ~~multi-spectral~~ multi-spectral distribution data of illuminating light by using the multi-spectrum camera 207 as shown in FIG. 1, i.e., to estimate the spectral distribution of illuminating light.

Please rewrite paragraphs [0019] - [0034] as follows:

**[0019]** FIG. 1 is a block diagram showing the arrangement of a multi-spectrum camera for acquiring spectral distribution data;

**[0020]** FIG. 2 is a graph for explaining the spectral distribution data acquired by the multi-spectrum camera;

**[0021]** FIG. 3 is a block diagram showing the arrangements of an image sensing device for sensing an object and an image processing apparatus;

**[0022]** FIG. 4 is a graph showing the acquisition result of eight sets of band information when a bluish color is sensed by the multi-spectrum camera;

**[0023]** FIG. 5 is a graph showing a method of estimating multi-spectral distribution data in an embodiment;

**[0024]** FIG. 6 is a graph for explaining band information necessary to estimate ~~multi-spectral~~ multi-spectral distribution data specifying a skin color;

[0025] FIG. 7 is a view for explaining a look-up table stored in a band count value storage;

[0026] FIG. 8 is a view for explaining a look-up table stored in a band number storage;

[0027] FIG. 9 is a block diagram showing detailed functions of the image sensing device;

[0028] FIG. 10 is a flow chart showing the image sensing procedure of the image sensing device;

[0029] FIG. 11 is a block diagram showing detailed functions of the image processing apparatus;

[0030] FIG. 12 is a flow chart showing the process procedure of the image processing apparatus;

[0031] FIG. 13 is a view showing the relationship between multi-spectral distribution data and frame band information;

[0032] FIG. 14 is a graph for explaining the process of compressing band information;

[0033] FIG. 15 is a graph showing the spectral characteristic data of RGB; and

[0034] FIG. 16 is a graph showing a color matching function in the XYZ colorimetric system.

Please rewrite paragraphs [0042] - [0044] as follows:

[0042] A color data look-up unit 107 stores information for forming main component spectral distribution data required by a main component spectral distribution data generator 108 to estimate ~~multi-spectral~~ multi-spectral distribution data by referring to the acquired color data and the spectral distribution data.

[0043] A multi-spectral distribution data estimator 109 estimates the ~~multi-spectral~~ multi-spectral distribution data of each pixel from the generated main component spectral distribution data and/or the spectral distribution data defined by the acquired color data.

[0044] The color data look-up unit 107, the main component spectral distribution data generator

108, and the multi-spectral distribution data estimator 109 construct a ~~multi-spectral~~ multi-spectral distribution data estimation processor 106.

Please rewrite paragraph [0053] as follows:

**[0053]** In this method, the above-mentioned three sets of band information for the multi-spectral distribution data  $R(\lambda)$  corresponding to the color data of a skin color are defined as first band information  $L1(\lambda)$ , second band information  $L2(\lambda)$ , and third band information  $L3(\lambda)$ , which are functions concerning the wavelength  $\lambda$ . The ~~multi-spectral~~ multi-spectral distribution data  $R(\lambda)$  corresponding to the color data of a skin color can be estimated by

$$R(\lambda) = \sum_{\lambda} \{a1 \cdot L1(\lambda) + a2 \cdot L2(\lambda) + a3 \cdot L3(\lambda)\} \dots (2)$$

where  $a1$ ,  $a2$ , and  $a3$  are arbitrary coefficients which can be different from one wavelength  $\lambda$  to another.

Please rewrite paragraph [0072] as follows:

**[0072]** In step S901, the ~~multi-spectral~~ multi-spectral distribution data estimation processor 106 reads out the color data of a pixel of interest from the color data storage 701. In step S902, the ~~multi-spectral~~ multi-spectral distribution data estimation processor 106 refers to the color data and acquires from the band count value storage 702 a count value  $n$  as the number of band information required to estimate the multi-spectral distribution data. In step S903, the ~~multi-spectral~~ multi-spectral distribution data estimation processor 106 acquires from the band number

storage 703 a band number corresponding to the count value.

Please rewrite paragraph [0075] as follows:

[0075] Although not shown in the table shown in FIG. 7, spectral distribution data configuration information or the like for designating the generation of an arbitrary number of main component spectral distribution data for estimating the ~~multi-spectral~~ multi-spectral distribution data from the "band spectral distribution data characteristic and band information" with respect to the color data is defined beforehand. This spectral distribution data configuration information includes main component spectral distribution data generation designation information, the number of main component spectral distribution data, band configuration information necessary to generate each of the main component spectral distribution data, coefficient information necessary to generate each of the main component spectral distribution data, and each main component spectral distribution data for estimating the multi-spectral distribution data corresponding to the color data.

Please rewrite paragraphs [0079] - [0081] as follows:

[0079] By using the "band spectral distribution data characteristics and band information" equal in number to the band information acquired in steps S904 and S905, or by using the spectral distribution data for estimating the multi-spectral distribution data corresponding to the color data including the main component spectral distribution data generated in step S909, in step S910 the multi-spectral distribution data estimator 109 estimates the ~~multi-spectral~~ multi-spectral

distribution data of a pixel of interest on the basis of the spectral distribution data for estimating the multi spectral distribution data corresponding to the color data including the generated main component spectral distribution data, or on the basis of the "band spectral distribution data characteristics and band information". In step S911, the estimated multi-spectral distribution data is stored in the multi-spectral distribution data storage 709. Note that the multi-spectral distribution data can be estimated by using each main component spectral distribution data and/or the linear sum method using the band spectral distribution data characteristics and band information.

[0080] The processing indicated by the flow chart in FIG. 12 is repeatedly performed for all pixels to calculate the multi-spectral distribution data of each pixel of the input image. This ~~multi-spectral~~ multi-spectral distribution data is stored in a multi-spectral distribution data storage 709.

[0081] By using that multi-spectral distribution data of each pixel of the input image, which is estimated by the above processing, the image processing apparatus 104 causes the color converter 110 to perform color conversion for the multi-spectral distribution data to obtain a desired output result, thereby obtaining the converted ~~multi-spectral~~ multi-spectral distribution data. In addition, the color data converter 111 integrates the multi-spectral distribution data converted by the color converter 110, by a convolution operation using a color matching function of an appropriately selected colorimetric system, thereby converting it into color vector data having three values. As this color vector data having three values, color space data unique to a device such as the  $L^*a^*b^*$  colorimetric system or the XYZ colorimetric system is generally selected. FIG. 16 shows a color matching function in the XYZ colorimetric system, as an

example of a color matching function.